

**ABSTRACT**

Apparatus and methods for determining a respiratory quotient are described. In one embodiment, a respiratory gas exchange monitor includes a respiratory gas conduit, a respiratory gas flow meter coupled to the respiratory gas conduit, and a respiratory gas sensor coupled to the respiratory gas conduit. The respiratory gas exchange monitor also includes a computation unit coupled to the respiratory gas flow meter and the respiratory gas sensor. The computation unit is configured to process outputs of the respiratory gas flow meter and the respiratory gas sensor to determine an amount of carbon dioxide produced by a subject and an amount of oxygen consumed by the subject, and the computation unit is configured to determine a respiratory quotient of the subject based on the amount of carbon dioxide produced and the amount of oxygen consumed.